48TC 08-16 WEATHERMAKER® SERIES
SINGLE PACKAGE ROOFTOP
GAS HEATING/ELECTRIC COOLING UNITS
TWO-STAGE/TWO-CIRCUIT AND
TWO-STAGE/ONE-CIRCUIT COOLING
CAPACITY CONTROL

— PERFORMANCE DATA

— CERTIFIED DIMENSION PRINTS

— CERTIFIED ROOF CURB DETAILS
## DESCRIPTION

48TC units are single-packaged electric cooling, gas heating units that are pre-wired and pre-charged with Puron® (R-410A) HFC refrigerant. The units are factory tested in both heating and cooling modes. These units meet the DOE-2018 (Department of Energy), ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) 90.1-2016, and IECC-2015* (International Energy Conservation Code) minimum efficiency requirements. Models with two-stage cooling and two-circuit design (08-16 sizes) come standard with two-speed indoor fan motor Stage Air Volume (SAV™) for U.S. installations. Models with two-stage cooling and one-circuit design does not require two-speed fan motor to meet U.S. minimum efficiencies for DOE.

## FEATURES

### Standard Base Unit (United States Models)

- Two-stage/two-circuit cooling capacity control on 08-16 models
- Two-stage/one-circuit cooling capacity control on 08, 09, and 12 models.
- Energy Saving Staged Air Volume (SAV™) two-speed indoor fan motor on two-circuit (08-16). Required in U.S. installations. Not available or required to meet DOE on 48TC*M models 08, 09, and 12.
- DOE-2018, ASHRAE 90.1-2016, and IECC-2015 compliant
- Rated in accordance with AHRI Standard 340/360
- Designed in accordance with Underwriters Laboratories Std 1995
- Listed by ETL and ETL-Canada
- Non-corrosive composite sloping design; side or center drain condensate pan. Meets ASHRAE Standard 62
- Standard cooling operating range from 40°F up to 115°F (4°C up to 46°C). Field installable accessory extends the minimum down to –20°F (–29°C).
- Field convertible from vertical to horizontal airflow for slab mounting
- Two-inch disposable return air filters
- Thru-the-bottom power and gas entry capability
- Single point gas and electric connections
- 24-volt control circuit protected with resettable circuit breaker and 75-VA transformer
- Belt drive, constant torque, permanently lubricated evaporator-fan motor
- Totally enclosed condenser motors with permanently lubricated bearings
- Low-pressure and high-pressure switches
- Full perimeter base rail with built-in rigging adapters and fork truck slots
- Central Terminal Board for component and unit wiring connections.

### Refrigerant System (All)

- Accutrol† and or TXV refrigerant metering system
- Liquid line filter drier
- Scroll compressors with internal line-break overload protection
- Copper tube, aluminum fin evaporator coils
- Top cover removable gauge line plugs for reading refrigerant pressure with unit panels in place.
- Round Tube/Plate Fin (RTPF) condenser coils on all model sizes or Novation® all aluminum condenser coils available on sizes 08-14 with two-stage/two-circuit.

### Gas Heat (All)

- IGC solid-state gas heat exchanger control for on-board diagnostics, anti-cycle protection, LED error code designation, burner control logic and energy saving indoor fan motor delay
- Gas efficiencies up to 82%
- Designed in accordance with ANSI Z21.47 (design and test standard for gas furnaces) and ANSI Z233.1 (National Fuel Gas code relating to appliance installation requirements)
- Induced draft combustion
- Redundant gas valve, with up to 2 stages of heating
- Flame roll-out safety protector
- Solid-state electronic direct spark ignition system

### Standard Limited Parts Warranty

- 15-year limited on all gas heat exchanger parts - Stainless Steel
- 10-year limited on all gas heat exchanger parts - Aluminized
- 5-year limited on all compressor parts
- 5-year parts on Factory Installed Ultra Low Leak Economizer
- 3-year limited on all Novation condenser coil parts
- 1-year limited on all Round Tube/Plate Fin (RTPF) condenser coil parts
- 1-year limited on all parts

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* IECC is a registered trademark of International Code Council Inc.
† Accutrol is a trademark of Accutrol LLC.
PERFORMANCE DATA

Unit Operating Weight __________________________ lb

**COOLING**

Gross Total Capacity __________________________ Btuh
at Condenser Air Temperature __________ °F
Gross Sensible Capacity __________________________ Btuh
Compressor Power Input _______________________ kW
Indoor Entering: db __________ °F / wb __________ °F
Airflow _____ CFM External Static Pressure _____ in. wg
Indoor Fan Motor Size __________________________ HP
Exhaust Fan Motor Size __________________________ HP

**Curb Weight** __________________________ lb

**HEATING (GAS)**

Heating Capacity:
Stage 1 __________________________ Btuh
Stage 2 __________________________ Btuh
Heating Capacity Total _______________________ Btuh
Stage 1 __________________________ kW
Stage 2 __________________________ kW
Heating Capacity Total _______________________ kW

**ELECTRICAL DATA**

Power Supply to Unit __________________________
Volts __________________________
Phase __________________________ Hz
Maximum Circuit Amps __________________________
Maximum Overcurrent Protection __________________________

**SUBMITTAL DATA**

Job Name __________________________
Architect __________________________
Engineer __________________________
Contractor __________________________
Unit Designation __________________________
**FACTORY-INSTALLED OPTIONS**

*Economizer with DRY BULB Sensing and Barometric Relief*

Low Leak Air Dampers —
- Models with W7212 controller provide standard non-diagnostic control (EconoMi$er® IV system).
- Models with W7220 controller meet California Title 24-2016 (Section 120.2) Fault Detection and Diagnostic (FDD) requirements (EconoMi$er X system).
- Models with RTU Open controller meet California Title 24-2016 (Section 120.2) Fault Detection and Diagnostic (FDD) requirements (EconoMi$er 2 system).
- Models with PremierLink™ controller. PremierLink controller does not meet California Title 24-2016 (Section 120.2) Fault Detection and Diagnostic (FDD) requirements. (EconoMi$er 2 system).

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*Economizer with DRY BULB Sensing and Barometric Relief*

ULTRA LOW LEAK Air Dampers —
- Models with W7220 controller meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12. Economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief air damper leakage requirements and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements. NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately. Outside air, return air, and relief air (volume) dampers are AMCA rated — plus 5 year limited parts warranty (EconoMi$er 2 system).

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- Models with W7220 controller meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12. For outside air, return, and relief air damper leakage requirements economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements. NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately. Outside air, return air, and relief air (volume) dampers are AMCA rated — plus 5 year limited parts warranty (EconoMi$er X system).

NOTE: Production of single phase voltage models has been discontinued per DOE regulations. Single phase 48TC models are only available until current inventories are exhausted.
FACTORY-INSTALLED OPTIONS (CONT)

Standard Base Unit (United States Models)
- RTU Open multi-protocol controller communicates to BACnet*, Modbus†, LonWorks**, and Johnson N2 protocols.
- Through the base connectors for gas and electric conduit/piping
- CCN Direct Digital Control (DDC) - PremierLink™ Controller††
- Stainless steel gas heat exchanger (includes tubes, vestibule plate and collector box)
- Humidi-MiZer® adaptive dehumidification system (RTPF condenser coil units only)
- Two-position motorized outdoor air damper
- Non-fused disconnect
- Powered 115-volt convenience outlet
- Non-powered 115-volt convenience outlet
- High static evaporator fan motor
- Return Air smoke detector
- Supply Air smoke detector
- CO₂ sensor
- Condenser hail guard-louvered style
- Special coating protection for evaporator and condenser coils
- Hinged access doors
- Condensate overflow switch
- Stainless steel gas heat exchanger

Standard Base Unit (Non-United States Models)
- Staged Air Volume (SAV™) 2-speed fan system

Optional Warranties
- Complete unit parts only, up to 5 years
- Complete unit parts and labor, up to 5 years
- Many other optional warranties are available. See the Commercial Start-Up and Optional Extended Warranty Price pages for further information.

* BACnet is a registered trademark of ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers).
† Modbus is a registered trademark of Schneider Electric.
** LonWorks is a registered trademark of Echelon Corporation.
†† Not available with SAV 2-speed fan motor.
FIELD-INSTALLED ACCESSORIES

☐ **Economizer with DRY BULB Sensing and Barometric Relief**

Standard Leak Air Dampers —
- ☐ Models with W7212 controller provide standard non-diagnostic control. EconoMi$er® IV.
- ☐ Models with W7220 controller meet California Title 24-2016 Section 120.2.i for Fault Detection and Diagnostic (FDD) requirements. EconoMi$er X.
- ☐ Models with RTU Open controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements. EconoMi$er 2.

- ☐ Models with PremierLink™ controller. PremierLink controller does not meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirement. EconoMi$er 2.

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- ☐ Models with RTU Open controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements. EconoMi$er 2.

- ☐ Models with PremierLink™ controller. PremierLink controller does not meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirement. EconoMi$er 2.

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NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately.

Outside air, return air, and relief air (volume) dampers are AMCA rated.

- ☐ Models with W7220 controller meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.) and mandatory section 120.2.i for Fault Detection and Diagnostic requirements. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12. Economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief air damper leakage requirements and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.

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NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately.

Outside air, return air, and relief air (volume) dampers are AMCA rated.

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- ☐ Models with W7220 controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements. EconoMi$er X.
- ☐ Models with RTU Open controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements. EconoMi$er 2.

- ☐ Models with PremierLink™ controller. PremierLink controller does not meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirement. EconoMi$er 2.
Display Kit for Variable Frequency Drive (VFD), Staged Air Volume (SAV™) System. Allows additional set up and diagnostics of the unit VFD controller. Can be unit mounted or used with any other compatible VFD model as a reusable device.

- Prop power exhaust
- Two-position motorized outdoor air damper
- Manual outside air damper 25%
- Manual outside air damper 50%
- Roof Curb — 14 inch (356 mm) tall
- Roof Curb — 24 inch (610 mm) tall
- Thru-the-bottom connections (electrical only)
- Thru-the-bottom connections (electrical and gas)
- Condenser hail guard (louvered style)
- Flue shield
- Flue discharge deflector
- Liquid propane (LP) conversion kit
- High altitude conversion kit
- Phase monitor (loss of phase/phase reversal)
- Winter start kit, down to 25°F (–4°C)

- Low ambient head pressure controller, down to 0°F (–18°C)
- Low ambient head pressure controller, down to –20°F (–29°C)
- Time Guard II compressor anti-cycle protection
- Thermostats and Sensors
- Supply duct kit (size 16 units only)
- Disconnect switch bracket (size 16 units only)
- Condensate overflow switch
- Non-powered 115-volt (20 amp) convenience outlet
- Side access hinged filter door kit
- Horn/strobe annunciator

**Economizer Sensors**

- Single Dry bulb control
- Differential Dry bulb control
- Single enthalpy control
- Differential enthalpy control
- CO2 — wall mounted
- CO2 — duct mounted
- CO2 — unit mounted
Fig. 1 — 48TC**08-12 Dimensional Drawing
CERTIFIED DIMENSION PRINT

Fig. 2 — 48TC**08-12 Corner Weights

NOTE:
1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL

OPERATING CLEA:

<table>
<thead>
<tr>
<th>SERVICE WITH</th>
<th>SERVICE WITH</th>
<th>CONDUCTIVE BARRIER</th>
<th>NONCONDUCTIVE BARRIER</th>
<th>CLEARANCE</th>
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<tbody>
<tr>
<td>FRONT</td>
<td>48 (171mm)</td>
<td>36 (914mm)</td>
<td>18 (457mm)</td>
<td></td>
</tr>
<tr>
<td>LEFT/W/RECIV</td>
<td>48 (171mm)</td>
<td>42 (106mm)</td>
<td>18 (457mm)</td>
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</tr>
<tr>
<td>BACK/W/RECIV</td>
<td>35 (914mm)</td>
<td>36 (914mm)</td>
<td>18 (457mm)</td>
<td></td>
</tr>
<tr>
<td>FRONT/TOP</td>
<td>36 (914mm)</td>
<td>36 (914mm)</td>
<td>18 (457mm)</td>
<td></td>
</tr>
</tbody>
</table>

TOP:
72 (1829mm)
Fig. 3 — 48TC**14 Dimensional Drawing
Fig. 4 — 48TC**14 Corner Weights
Fig. 6 — 48TC**16 Corner Weights
### CERTIFIED ROOF CURB DETAILS

**Fig. 7 — 48TC**08-14 Roof Curb Details

<table>
<thead>
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<th>ROOF CURB ACCESSORY #</th>
<th>A</th>
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<tbody>
<tr>
<td>CRRFCURB003A01</td>
<td>14&quot;</td>
</tr>
<tr>
<td>CRRFCURB004A01</td>
<td>24&quot;</td>
</tr>
</tbody>
</table>

**NOTE:**
1. ROOF CURB ACCESSORY IS SHIPPED DISASSEMBLED.
2. INSULATED PANELS: 25.4 [1"] THICK, POLYURETHANE FOAM, 44.5 [1-3/4"] # DENSITY.
3. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
4. ROOF CURB: 18 GA STEEL.
5. DUCTWORK TO CURB: (FLANGES OF DUCT REST ON CURB). ATTACH DUCTWORK TO CURB (FLANGES OF DUCT REST ON CURB).
6. SERVICE CLEARANCE: 4" BTW ON EACH SIDE. DIRECTION OF AIR FLOW: SEE NOTE #6.

**CONNECTOR PKG. ACC.**
- GAS CONNECTION TYPE: THRU THE CURB
  - GSHT (1/2") NPT
- GAS FITTING: THRU THE CURB
  - 1 1/4" [31.7] NPT
- POWER WIRING FITTING: 1/2" [12.7] NPT
- CONTROL WIRING FITTING: 1/2" [12.7] NPT

**ASSEMBLY:**
- CONNECTOR PACKAGE: CRBTMPWR002A01 IS FOR THRU-THE-CURB GAS TYPE PACKAGE CRBTMPWR004A01 IS FOR THRU-THE-BOTTOM GAS CONNECTIONS.

**NOTES:**
1. ROOF CURB ACCESSORY IS SHIPPED DISASSEMBLED.
2. INSULATED PANELS: 25.4 [1"] THICK, POLYURETHANE FOAM, 44.5 [1-3/4"] # DENSITY.
3. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
4. ROOF CURB: 18 GA STEEL.
5. ATTACH DUCTWORK TO CURB: (FLANGES OF DUCT REST ON CURB).
6. SERVICE CLEARANCE: 4" BTW ON EACH SIDE. DIRECTION OF AIR FLOW: SEE NOTE #6.

**CONNECTOR PKG. ACC.**
- GAS CONNECTION TYPE: THRU THE CURB
  - GSHT (1/2") NPT
- GAS FITTING: THRU THE CURB
  - 1 1/4" [31.7] NPT
- POWER WIRING FITTING: 1/2" [12.7] NPT
- CONTROL WIRING FITTING: 1/2" [12.7] NPT

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- CONNECTOR PACKAGE: CRBTMPWR002A01 IS FOR THRU-THE-CURB GAS TYPE PACKAGE CRBTMPWR004A01 IS FOR THRU-THE-BOTTOM GAS CONNECTIONS.
CERTIFIED ROOF CURB DETAILS

Fig. 8 — 48TC**16 Roof Curb Details